

CLAIMS

1. A sheet paper identification apparatus that performs identification of a sheet paper on the basis of an image of said sheet paper, the sheet paper identification apparatus comprising:

an image acquisition means for acquiring an image in a specified area of the sheet paper;

an image contrast analysis means for analyzing contrast of the image acquired by the image acquisition means; and

an imaging condition adjusting means for adjusting a condition for imaging said image on the basis of a result of the contrast analysis performed by the image contrast analysis means.

2. The sheet paper identification apparatus according to Claim 1, wherein the image contrast analysis means comprises a means for creating a density histogram from the image acquired by said image acquisition means and analyzes the contrast of the image on the basis of the density histogram created by the histogram creation means.

3. The sheet paper identification apparatus according to Claim 2, further comprising a means for judging the acquisition of an image that is in a state where no sheet paper exists in an imaging section, which images the sheet paper, and judging an unwanted image based on a density histogram of the acquired image, and a means for prohibiting identification of the sheet paper when the judging means determines that the unwanted image exists.

4. The sheet paper identification apparatus according to Claim 3, wherein the judging means comprises a means for counting the number of pixels in a density value within a preset range on the basis of the density histogram and judges that the unwanted image exists when the number of pixels counted by the counting means exceeds a predetermined reference value.

5. The sheet paper identification apparatus according to Claim 2, wherein the image contrast analysis means comprises a means for counting the number of pixels of a density value within a preset range based on said density histogram, analyzes the contrast of the image by checking whether or not the number of pixels counted by the counting means is within a preset reference range, and the imaging condition adjusting means adjusts an output of imaging means for imaging the sheet paper so that the number of pixels falls within the reference range.

6. The sheet paper identification apparatus according to Claim 2, wherein the image contrast analysis means comprises a means for counting the number of pixels of a density value within a preset range on the basis of the density histogram, analyzes the contrast of the image by checking whether or not the number of pixels counted by the counting means is within a preset reference range, and the imaging condition adjusting means adjusts illumination time of illumination means for illuminating the sheet paper so that the number of pixels falls within the reference range.

7. The sheet paper identification apparatus according to Claim 1, wherein the

image acquisition means acquires a transparent image in a watermark region in which a watermark pattern of the sheet paper exists, and the imaging condition adjusting means adjusts a condition for imaging the transparent image.

8. A sheet paper identification method for identifying a sheet paper on the basis of an image of the sheet paper, comprising:

acquiring, by image acquisition means, an image in a specified area of the sheet paper;

analyzing, by image contrast analysis means, the contrast of the image acquired by the image acquisition means; and

adjusting, by imaging condition adjusting means, an imaging condition for the image on the basis of a result of the contrast analysis performed by the image contrast analysis means.

9. The sheet paper identification method according to Claim 8, comprising:

creating, by histogram creation means, a density histogram from the image acquired by the image acquisition means; and

analyzing, by the image contrast analysis means, the contrast of the image on the basis of the density histogram created by the histogram creation means.

10. The sheet paper identification method according to Claim 9, comprising:

acquiring an image, which is in a state where no sheet paper exists in a imaging section that images the sheet paper, and judging by judging means an unwanted image based on the density histogram of the acquired image; and

prohibiting, by identification prohibition means, identification of the sheet paper when the judging means judges that the unwanted image exists.

11. The sheet paper identification method according to Claim 10, comprising:
counting, by counting means, the number of pixels of a density value within a preset range on the basis of the density histogram; and
judging, by the judging means, that the unwanted image exists when the number of pixels counted by the counting means exceeds a preset reference value.

12. The sheet paper identification method according to Claim 9, comprising:
counting, by counting means, the number of pixels of a density value within a preset range on the basis of the density histogram;
analyzing, by the image contrast analysis means, the contrast of the image by checking whether or not the number of pixels counted by the counting means is within a preset reference range; and
adjusting, by imaging condition adjusting means, an output of imaging means for imaging the sheet paper so that the number of pixels falls within the reference range.

13. The sheet paper identification method according to Claim 9, comprising:
counting, by the counting means, the number of pixels of a density value within a preset range on the basis of the density histogram;
analyzing, by the image contrast analysis means, the contrast of the image by checking whether or not the number of pixels counted by the counting means is within

a preset reference range; and

adjusting, by the imaging condition adjusting means, illumination time of illumination means for illuminating the sheet paper so that the number of pixels falls within the reference range.

14. The sheet paper identification method according to Claim 8, wherein the image acquisition means acquires a transparent image in a watermark region in which a watermark pattern of the sheet paper exists, and the imaging condition adjusting means adjusts a condition for imaging the transparent image.